How Public Managers Make Tradeoffs Regarding Lives:
Evidence From a Flood Planning Survey Experiment

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Abstract
Public administrators exercise discretion over a host of matters, including decisions that implicitly trade off lives compared to other objectives such as economic prosperity or health and well-being. Tradeoffs refer to the choice to diminish or enhance one good or quality in exchange for more or less of a finite other good or quality. While practitioners routinely make choices and the scholarly field of public administration analyzes tradeoffs among a number of public values, there are almost no empirical analyses of whether and how public managers make tradeoffs over lives. The study of how managers make tradeoffs and calculate the value of life originates in economics (Carlsson et. al. 2012, Carlsson, Kataria, and Lampi 2011). These studies, however,
rarely, address how managers value lives versus other substantive goals in planning and policy decisions.

Our study asks managers to choose among flood planning scenarios with different outcomes and finds that lives are one issue about which they make tradeoffs. We survey city and county managers, emergency managers, public works managers, and urban planners about a flood risk decision that they all commonly face, but which typically has an implicit rather than explicit potential tradeoff regarding lives. We find that individual managers do make tradeoffs regarding lives compared to other features in planning scenarios, including project cost, and property damage sustained. Among the four professional groups we compare, public works managers show a greater aversion to fatalities, while city managers and planners are less averse and emergency managers show no significant relationship. Our study also calculates a value of life and relates it to the value in other domains. We also find that public managers prefer plans in which losses are distributed equally across a county rather than being concentrated in high or low income areas, which suggests that managers favor decisions corresponding to a particular notion of equity.
An important aspect of government and policy implementation is the balance among different and sometimes contradictory standards of behavior (Kettl 1993, 17-20) resulting in tradeoffs between cherished principles (Le Grand 1990; Zacka 2017). In one oft-repeated formulation, David Easton (1965) defines politics as the authoritative allocation of values.

Public managers at different levels of an organization confront choices among competing values, principles, and standards of behavior. For example, street level bureaucrats make choices about how to distribute goods, or which value to favor in exercising discretion individual cases (Maynard-Moody and Musheno 2003, Zacka 2017). One way to express how managers make choices is to borrow the notion of a tradeoff from economics. Tradeoffs refer to the choice to diminish or enhance one good or quality in exchange for more or less of a finite other good or quality. Tradeoffs are often expressed in terms of opportunity costs—the losses from potential gains from other alternatives. Mid-level managers make implicit tradeoffs when engaging in inter- and cross-organizational planning processes. Public administration scholars acknowledge that in allocating scarce resources and opportunities, public officials oftentimes make “difficult choices or judgments among incompatible and incommensurable values” (Spicer 2009, 541) resulting in “difficult value choices” (Wagenaar 1999, 444). Professionalization processes such as education and codes of ethics hold out promise for helping to ease these difficulties, but even though recent studies have attempted to specify mechanisms for addressing these impediments (Kernaghan 2003; Reddick, Demir, Streib 2018), the impact of education, training, and codes on real-world decision-making remain inconclusive.

While the notion of a tradeoff has its roots in economics, some public administration scholars do examine assumptions about how managers make tradeoffs. Empirically-oriented
public value theorists believe that selecting among competing values depends on the decision maker’s analytical framework for sorting through individual versus organizational or sector-specific public values (Bozeman 2007, Van Wart 1998). A normative tradition in public administration identifies the salient regime values that prevail in the United States by analyzing Supreme Court decisions, which both reflect and shape social consensus, penetrating down to the level of managers, who must use their discretion to choose among them. (Rohr 2002).

One rich ethnographic study analyzes street level bureaucrats as armchair philosophers with the discretion to choose among philosophic traditions (e.g. utilitarianism vs. deontological positions) in serving their clients (Zacka 2017). It is not a far stretch from front-line welfare office workers choosing among rights-based or utilitarian traditions to trolley problems. The trolley problem is a famous thought experiment in ethics. In one of the most cited of many iterations, a trolley car is headed down a track toward five people tied to the track, and you—the subject of the thought experiment—can choose to push a very fat man over a bridge and divert the trolley away from the five victims, but killing the fat man, or you can leave both the fat man and the trolley alone, and see the five meet a certain death. In essence the experiments asks whether you would pull the level and save five lives but kill one, a position consistent with utilitarianism, or decide not to intervene, killing five and saving one. The decision not to intervene is the subject of multiple interpretations, but it may represent ethical positions that privilege rights and non-interference, or it may represent a behavioral bias for the status quo bias. There is no right answer to the trolley problem, but it is meant to bring out ethical intuitions, and in most settings (including most public administration ethics classes), most people choose to save the five in a version of the story without the fat man, but most resist saving the five when they are required to push they fat man to his death is required, reflecting what philosophers call
deontological ethics, which makes it morally wrong to sacrifice an innocent victim. The criticism from scholars as well as students in one of this paper’s authors’ ethics classes is that the trolley problem is too simplistic, lacks external validity, and is not relevant to the public management context.

Our paper takes a different approach by beginning with a managerial situation—choosing among hazard mitigation plans—and then using statistical tools to analyze how managers differ in their choice to save lives versus other goods such as protecting property or saving money. There may be some for whom lives matter above all else, and some with other priorities. Rather than settle a philosophic debate, this paper seeks to add empirical clarity to the understanding of how managers make tradeoffs over lives, thereby contributing to scholarship on the microfoundations of managerial behavior and enriching thought experiments like the trolley problem, which are sometimes used in public management and policy classes (Grimmelikhuijsen, Jilke, Olsen, and Tummers 2017; Jilke, Van de Walle and Kim 2016; Moynihan 2018). We present a national sample of local government managers with hypothetical scenarios about a flood planning decision and ask them to choose their preferred scenario outcome to elicit value preferences. Thus, in contrast to other studies (e.g. Fernández-Gutiérrez and Van de Walle, 2018) which only ask about public officials’ values in general situations, this study provides a specific context in which officials make tradeoffs.

Studying value tradeoffs is important to demonstrate how managers make implicit value choices in planning for disasters, and to investigate whether professional groups approach problems differently. We expect that managers’ choices differ by professional group—in our case, city and county managers, emergency managers, public works managers, and planners. Professional groups socialize managers in a variety of ways, including through education, ethics,
and how they frame public problems (Perry, 1997; Perry and Lindell, 2006). We also investigate whether managers weigh lives differently depending on prior experience with floods, while controlling for the political culture of the county and demographic characteristics. Finally, we ask whether managers prefer flood plans that treat all areas of a county equally, or whether they favor plans that give greater or lesser weight to high or low-income areas. Foreshadowing our findings, we see evidence of differences among professions and conclude that it is important that different professional perspectives be at the table when making public sector decisions about risking lives and property.

We start by reviewing the relatively thin literature on the role of tradeoffs in decision-making by public managers, with a focus on situations that involve the potential loss of life. This review motivates the hypotheses that we construct to frame our analysis, along with several control variables that the literature suggests can influence decision-making. We next describe our data gathering approach, which entailed an on-line survey that collected responses from over 1,000 public officials in all U.S. states except Hawaii. This survey included questions that presented hypothetical decision scenarios, which we then analyzed to estimate the relative priorities that our respondents place on different outcomes from the decision. We conclude by summarizing the evidence from our analysis with respect to our hypotheses, describing several limitations of our study, and discussing the implications of our findings for managerial professionalization and the structure of decision processes.

**Tradeoffs Over Lives**

Theories about how people make tradeoffs regarding lives fall into roughly two schools of thought, with smaller groupings within each school. A normatively-oriented tradition
encompasses philosophy and studies of value in public administration that make explicit their normative commitments (though they may marshal empirical evidence). Another tradition is found in economics and applied microeconomic work in other disciplines. One public administration article in the normatively-oriented tradition claims that “human life has priority over economic value, and the sanctity of life,” and in applying that logic to a case finds that “the value of the sanctity of human life and the duty to protect others (the tourists) from harm is too important a value to be sacrificed in exchange for economic benefit” (Urbano 2014, 16).

McSwite (2002, 62-64) claims that public administrators in Nazi Germany were efficient and effective but went astray by valuing technique over human life. Political theorist Michael Sandel (2012, 2013) describes the core of this perspective: human life is something that money cannot buy and therefore should be preserved before considering other value tradeoffs. This idea finds one practical expression in the precautionary principle, an idea that guides much of the European Union regulation (Sand 2000). The basic idea is that government should intervene to limit risky actions even when there is still uncertainty about whether these actions will cause harm to human lives.

Some public value theorists go as far as to claim that “whether human lives are substitutable assets” depends on the decision maker’s value framework (Bozeman 2002, 154; 2007). In other words, from the public values perspective, some managers may choose the preservation of life as a supreme or “sacred” value that cannot be traded off against other values (Tetlock 2000; 2003).

The economic perspective, however, does not privilege lives in a separate category to the same degree—or to the degree that the deontological (don’t push the fat man) position in the trolley problem does, or even to the degree that precautionary principle in most of its iterations
Economists typically place tradeoffs in a monetary framework that allows direct
comparison, such as a cost-benefit analysis. Some economists favor a utilitarian calculus, while
others favor wealth maximization, which jettisons some utilitarian assumptions but still measures
value through one’s willingness to pay or through actions taken (Posner 1979, 1985; Sen 1977).
For goods lacking costs or benefits denominated in monetary units, such as loss of life,
economists can employ stated-preference methods or estimate the value indirectly revealed
through actions taken. These approaches include willingness to pay to reduce the risk of illness
or death, estimating wage differentials among risky occupations, or assessing the number of lives
saved by a regulation. The basic logic with this approach is that within an environment of limited
or scarce resources, most people are willing to compromise lives for some other good (Oldenhof, Postma, and Putters 2014; Sunstein 1996).

With the exception of normative articles in the subfield of administrative ethics, the
literature on tradeoffs among public managers is sparse and often focuses on tradeoffs among
competing goals such as equity versus efficiency or coordination versus control, rather than
making lives an explicit focus (Kivleniece and Quelin 2012; Fernández-Gutiérrez and Van de
Walle 2018; Rutgers and van der Meer 2010; Resh and Pitts 2013; Van Wart and Berman 1999).

A prominent guide to ethics in the workplace claims that “most ethical decisions do not hold
one’s life in the balance” (Guy 1990, 6). Some studies of hospital management, however, have
analyzed how managers in fact do balance tradeoffs between preserving and extending lives and
cost (de Graaf, Huberts, Smulders 2016, 1121; Hart et al. 2015). Lives are in the background of
many efficiency and equity studies.
In addition to normative reasons not to trade off lives against other goods, the psychology literature provides reasons to think that some people may not trade off lives against other values in practice. People make some decisions based on quick-response affect, especially in contexts with high hedonic and emotional weight (Böhm 2008; Shiv and Fedorikhin 1999). The idea is that humans have a set of potential triggers in their affect pool including decisions involving lives (Epstein 1994, Finucane et. al. 2000; Rottenstreich and Hsee 2001; Slovic et. al. 2004). So called “affect” considerations (Loewenstein and Lerner 2003; Slovic et al. 2002), an intense state of “bad” feelings that people experience that may influence cognitive processes enough to alter choices, could potentially lead some people to refuse to trade off lives versus other goods. However, the literature does not provide a clear direction for how affect influences decision-making beyond its potential to trigger a quick response. In addition, other psychology studies find that even though people may profess inviolable commitments to certain values such as honor, love, or the preservation of human life, when faced with a “tragic tradeoff” between two equally undesirable choices they will acquiesce and look for a compromise (Tetlock 2003). Therefore, simply asking people which values might trump all others is an insufficient measure of their preferences without presenting a context in which they can make a trade off.

In choosing among values in a managerial context, a manager’s job and organizational home appear to be important in shaping choices (Van Thiel and van der Wal 2010). De Graaf, Huberts, Smulders (2016, 1121) find that which value conflicts administrators experience and which they privilege are largely shaped by their job. Vrangbæk (2009) finds differences at the organizational level: managers working in more traditional bureaucratic organizations were more concerned with efficiency as a value than managers working in less bureaucratic, more operational organizations. Putting this in the context of risk, Corvellec (2010) argues that the
conceptualization of risk in an organization depends on what its managers consider to be of value for the organization’s practice. This value necessarily reflects managers’ views of their organization’s mission, responsibility, and efficacy. For example, in the development of safety standards, engineers show a greater focus on long-term safety than project managers, who are more likely to focus on cost and schedules (Hayes 2015, 51, 55). Thus, it seems plausible that professional affiliation shapes how managers approach tradeoffs.

Given the paucity of studies about whether and how managers make tradeoffs over fundamental values, it is important to establish whether managers do in fact make tradeoffs, even if professional codes and mission statements profess that some values are inviolable. The scholarly literature does not establish whether managers always prefer to minimize loss of lives over other values, but there is evidence that managers’ professional and organizational home shapes which values they pursue.

This study examines how managers trade off lives versus other values in a multi-organizational disaster planning scenario in which lives, property, and community functioning are at stake. The complex, multi-organizational environment allows us to simulate the different perspectives involved in a decision in which many organizations at the county level participate. More than two decades ago Hans and Nigg (1994, 5) wrote that “most work on disasters and hazard mitigation has failed to examine systematically the ethical and moral aspects of responsibility prior to the occurrence of a destructive event.” The literature on hazards and disaster management has grown to explore the complex, multi- and inter-organizational dynamics that shape disaster planning, but inquiry into how norms and values shape those decisions remains sparse.
Hypotheses

Because of the importance of the research question but the paucity of the literature, we state our hypotheses as null hypotheses.

**H1: Professionals do not trade off lives for other goods.**

Some scholars of public values imply, and some managers and professional groups assert, that managers value lives above all else. Some individuals may operate from strict deontological reasoning or an instinctive aversion to harm and always prefer to preserve life in a managerial situation, no matter what the cost. However, there is also reason to believe that individuals make value tradeoffs against lives depending on the situation, and mediated by individual, organization, and community-level characteristics – no matter what they might say about valuing life above all else.

**H2: Professionals’ value choices do not vary according to their professional affiliation.**

As the literature review discusses, scholars of organizations find that organizational homes and managers’ positions within an organization shape value tradeoffs (Corvellec 2010, de Graaf, Huberts, Smulders 2016, Vrangbæk 2009). The management literature has long held that organizations adopt distinct and relatively fixed perspectives that influence their members (Mintzberg 1987, 16). However, we do not have evidence about how these organizational perspectives might influence value tradeoffs in the context of mitigation planning.
Socio-demographic factors

Beyond the organizational and professional home and county culture, socio-demographic characteristics influence managers’ calculations about how to trade off lives versus other goods. Gender can have an impact on life tradeoffs in at least two ways. First, men and women may approach risk in different ways (Byrnes, Miller and Schafer 1999), although the specific differences can often be explained by structural differences in the decision situation rather than biology (Gustafson 1998). In addition, some other studies of male and female managers show that both genders have a similar propensity for risk (Johnson and Powell 1994). However, if the propensity for risk is different due to a combination of gender and structural factors, then men and women may approach life tradeoffs differently. In addition, men and women may have different value systems due to different socialization processes (Rokeach 1973), although this phenomenon has proved difficult to document consistently, particularly in recent studies. This may be partly because of changing value systems across generations that have shifted from the nearly half-century since Rokeach’s work (Lyons, Duxbury, and Higgins 2005). For example, one large study comparing male and female managers does not find significant differences in value systems by gender (Stackman, Connor, and Becker 2006), and Van der Wal, De Graaf, and Lasthuizen (2008) find that value differences are primarily explained by public and private sector differences rather than age or gender. Therefore, we include gender as a control but do not hypothesize about its meaning. Years of experience and education levels are similarly common control variables that we include in our model, but we lack a basis in the literature for a consistent hypothesis.

We also control for count political culture. Debates over red versus blue America reflect concern that variation in political culture (Gelman 2009) may influence value tradeoffs. Studies
find that public officials’ values are affected by the community in which they live (Fernández-Gutiérrez, M., & Van de Walle 2017). The idea is that managers respond to direction from political superiors, who receive direction from their electoral coalitions, as well as from the public and interest groups directly. Political culture is a broad concept that encompasses values, networks, affiliations, and structures over time, and in the United States it is often organized according to party affiliation and voting behavior. We focus on county-level variables because the county is small enough to distinctively influence local government managers, as opposed to state level variables. For example, Pollitt and Bouckaert (2004) use variation in county culture as an explanatory factor in administrative reform.

Specifically, we use an average of the percent of a county voting for Democratic presidential candidates in the five elections from 2000 to 2016 as a shorthand to control for political culture. Voting for a party’s candidate is not the same thing as culture, of course, but it is a reasonable proxy that describes an important local-level variation in public administrator’s work lives.

Method

To study how professionals differ in making trade-offs among lives, project costs, property damage, and the spatial and temporal effects of a disaster, we used a quantitative approach. Through the development of a questionnaire we presented respondents with a vignette asking them to choose a plan to respond to a flood scenario outcome. Study participants were selected on the basis of their level of government and their profession—city and county managers, planners, emergency managers and public works officials. We focus on local managers because disasters have geographically and locally-specific consequences, local
managers are widely distributed and numerous, and all must confront disaster mitigation issues in their work. Even though, writing a natural hazard mitigation plan is not mandatory, states and local governments who want to access to both mitigation and recovery federal funds need to have an updated plan in place (Berke, Lyles & Smith, 2014; Velotti and Justice, 2016). In providing guidance on how to write and develop a natural hazard mitigation plan, the Federal Emergency Management Agency (FEMA) suggests that each planning committee should include representatives of local and state government agencies (FEMA 2018). Public works officials often become involved in practice because of their responsibility for structural and nonstructural mitigation features such as building standards and parks used as wetland barriers. City and county-level managers participate in the natural hazard mitigation planning process, while planners often have specific responsibilities regarding hazard mitigation (Perry and Lindell 2006). Emergency managers are county level officials involved throughout the process of preparing for disasters. They may have training in hazard mitigation planning, but they must work with other county offices to finalize a feasible plan (FEMA 1995, McLoughlin 1985, Petak 1985). This paper employees a flooding scenario because flooding is the most common and widespread natural hazard in the United States (FEMA, 2004).¹

Our questionnaire begins with background demographic questions and then presents vignette studies to use to elicit information about the decision process. Vignette studies, also known as factorial surveys and choice experiments (Atzmüller and Steiner 2010, Louviere 1996, Louviere, Hensher, and Swait 2000, Rossi and Nock 1982), present hypothetical alternatives to achieve some goal, each alternative having different combinations of attributes. Survey respondents select their preferred combination of characteristics, and by their choices, one can

¹ The Federal Emergency Management Agency’s flood zone map is here: https://msc.fema.gov/portal/search. Some areas of the country remain unmapped, but even areas with a low annual chance of a flood can have some flood risk.
estimate the relative weighting of each characteristic. Moat vignette studies examining life tradeoffs focus on choices made by private individuals, normally estimating an individual’s willingness to pay to reduce the risk of death by a specified probability, although some have operated at a community scale and with public officials. For example, Carlsson, Kataria, and Lampi (2011) used vignettes with public environmental managers in Sweden to estimate their tradeoffs among premature deaths, environmental degradation, cultural assets, and costs.

In our case, the alternatives represent different proposed flood mitigation schemes in each respondent’s community, and the characteristics consist of expected future flood impacts that the community would see after implementation of each scheme. The advantage of our approach is that we survey managers, not students or the public, and we use plausible forecast and planning options. The disadvantage of the approach is that each manager may draw on their own experience in answering the question. Managers from large, rich counties may operate under different constraints than managers from small, modestly-resourced counties. We assume that our managers are sophisticated enough and have enough experience throughout their careers, which may span multiple jurisdictions, to be able to put themselves in a fictional scenario and adopt the vignette’s perspective, following best practices in the vignette literature (Carlsson, Kataria, and Lampi 2011).

Table 1 shows the five different attributes and the different levels that they ranged over. These attributes include the expected number of fatalities from flooding, amount of time that local businesses would be closed due to flooding, flood damages, the type of area (e.g., low-income vs. high-income) that would experience the flood damages, and the cost of the mitigation alternative. In addition to these levels, we include a status quo option in each experiment, which describes the current flooding characteristics in the hypothetical 50,000 person community that
we tell respondents they will make decisions for (e.g., the community experiences a significant flood every 25 years that affects all parts of the community equally, with the flood causing the loss of 10 lives, $100 million in unreimbursed private property damage, and a shutdown of businesses for 30 days). Unlike the mitigation alternatives, which address these negative impacts, the status quo option assumes that the current impacts will continue if no additional mitigation investments are made (i.e., the annual mitigation cost to the local government of the status quo option is $0).

Table 1. Attributes and their Levels in Vignette Studies

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Levels of Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>cost: annual cost to local government of</td>
<td>$0/year to $1 million/year (increments of $100,000)</td>
</tr>
<tr>
<td>mitigation alternative</td>
<td></td>
</tr>
<tr>
<td>fatalities: number of fatalities from flooding</td>
<td>0, 1, 2, 3, 10 fatalities over 25 years</td>
</tr>
<tr>
<td>days: number of days until all businesses</td>
<td>0 days to 14 days (increment of 1 day), 30 days</td>
</tr>
<tr>
<td>affected by flood reopen</td>
<td></td>
</tr>
<tr>
<td>area: area of community experiencing</td>
<td>low income areas, all areas equally, high income areas</td>
</tr>
<tr>
<td>residential flood damage</td>
<td></td>
</tr>
<tr>
<td>damage: unreimbursed cost of private residential damage</td>
<td>$0 to $25 million (increments of $5 million), $100 million</td>
</tr>
</tbody>
</table>

Each alternative contains one level for each of the five characteristics
Figure 1 provides an example of what respondents saw in a hypothetical scenario. Each respondent faced 6 different hypotheticals, each with three alternatives to choose from (A, B, and status quo in Figure 1) and made 6 choices, but we varied these hypotheticals over respondents to capture the entire range of levels appearing in Table 1 in an efficient manner. Five of the six vignettes that each respondent faced provided non-dominated alternatives, but one included a dominant alternative as a check on respondent attention as described below. In keeping with best practices, we also included a “do nothing” option (status quo in Figure 1), which increases the design efficiency of our experiment and adheres to the reality that our public officials can choose not to take specific actions (Brazell 2006).

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2 The number of possible combination of the different attributes levels appearing in Table 1 equals 18,480 (11 levels of cost * 5 levels of fatalities * 16 levels of days * 3 levels of area affected * 7 levels of damage). This yields over 170 million pairwise comparisons, far too many to include in our survey even after eliminating clearly dominated comparisons (where one of the alternatives is superior to the other on all attributes). To create an efficient design of the comparisons that maximizes the information gained from them, we employed a Stata software user script, decreate, developed by Hole (https://www.sheffield.ac.uk/economics/people/hole/stata). Hole used a modified Fedorov algorithm (Cook and Nachtsheim, 1980; Zwerina et al., 1996; Carlsson and Martinsson, 2003) that maximizes the so-called D-efficiency of the information matrix containing the attribute levels. We developed 32 sets of the choice experiments to ensure that each would be received by a sufficient number of respondents (Louviere et al., 2000).
Imagine that you live in a fictional jurisdiction called Springfield, which has 50,000 residents. Springfield experiences a significant flood roughly every 25 years, and the most recent such flood caused the loss of 10 lives and $100 million in unreimbursed private property damage (not covered by insurance or disaster assistance). It also shut down businesses for 30 days. The impacts of flooding typically affect all parts of Springfield equally.

You have two mutually exclusive mitigation projects to choose from in each of the six separate scenarios. Regardless of the choice, Springfield still will have a major flood every 25 years, but the severity of flood impacts will decrease with either mitigation project. If you choose not to implement either project (status quo option), Springfield will continue to experience the floods and associated impacts that it currently does.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>A</th>
<th>B</th>
<th>status quo</th>
</tr>
</thead>
<tbody>
<tr>
<td>cost of mitigation project to Springfield government</td>
<td>$400,000/year for 25 years</td>
<td>$500,000/year for 25 years</td>
<td>$0/year (no cost to Springfield government)</td>
</tr>
<tr>
<td>number of fatalities</td>
<td>0 fatalities</td>
<td>3 fatalities</td>
<td>10 fatalities</td>
</tr>
<tr>
<td>length of time until all businesses are reopened</td>
<td>12 days</td>
<td>3 days</td>
<td>30 days</td>
</tr>
<tr>
<td>area of residential flood damage</td>
<td>low-income area</td>
<td>all areas affected equally</td>
<td>all areas affected equally</td>
</tr>
<tr>
<td>unreimbursed cost of private residential property damage</td>
<td>$20 million</td>
<td>$25 million</td>
<td>$100 million</td>
</tr>
</tbody>
</table>

Do you prefer project A, project B, or keeping the status quo?

**Figure 1. Hypothetical Scenario Presented to Respondents**

Recent studies provide empirical support for the external validity of vignette-based choice experiments, showing that the decisions made in response to the survey are consistent
with real-world decisions (Evans et. al. 2015, Hainmueller, Hangartner and Yamamoto 2015, Peabody et. al. 2004). Moreover, analyzing a decision relevant to managers’ work improves this external validity by allowing us to study managers in their environment rather surveying college students or the general population, as some other studies of decision-making do. The flood planning vignettes also allow us to interpret relevant factors in the decision context.

Participants

We constructed a roster of government officials working in emergency management, planning, public works, and local government management from a rented membership list of the International City/County Management Association (n = 6,001), supplemented with additional emergency managers (n = 1,869), planners (n = 420), and city managers (n = 420) scraped from websites by the authors. Combined, these sources yielded 8,710 potential subjects. The majority in this list lacked valid email addresses so we employed Amazon’s Mechanical Turk service whereby individual workers paid a small amount per email address located accurate email addresses. We then conducted pretests of our survey questionnaire in two rounds, with the first round (n = 5 university-affiliated staff) consisting of questionnaire administration immediately followed by a posttest interview in-person or by phone for survey feedback. In the second round, we cold-solicited a group of 50 public managers who were not part of the survey sample to complete the survey and answer questions about it by phone or email. In the end, 10 out of the 50 professionals provided feedback and recommendations on the survey design and content.

With contact information from our list of subjects, we recruited study participants through postcards first and then email in October 2016, followed by two rounds of email to non-respondents. This yielded 1,038 total respondents, broken down into:
• 270 local emergency managers
• 341 planners
• 223 city or county managers
• 174 public works officials
• 30 other

This represents a response rate of 11.9 percent (American Association for Public Opinion Research 2016, Survey Outcome Rate Calculator 4.0, Response Rate #4 definition).

A central issue in any survey research design concerns how the sample differs from the population. Our sample contains managers from 633 unique counties and all states except Hawaii. Unfortunately, no single list of the entire population of public managers in various occupational categories in local government exists to test our sample against, but we can compare several characteristics of our respondents to other major samples. Table 2 shows that we have a predominantly older, male, experienced, and well-educated set of respondents in each of our four professional groups, decidedly not representative of the US population at large. However, our sample means do compare favorably with other recent samples of our professional groups.

For example, in the most recent large \( n = 438 \) survey of city managers, Reddick, Demir and Streib (2018) report that 88.6 percent were male, the average age was 53.7, the majority had more than 10 years of experience, and 70 percent held graduate degrees. A International City/County Management Association (2014) survey shows a similarly large majority of older males in the city management profession, while professional association surveys of planners and public works officials reveal a mostly male workforce, with planners more likely to have graduate degrees than public works officials (American Planning Association 2018; American
Public Works Association 2013). Our sample of emergency managers resembles the Weaver et al. (2014) study in which emergency managers are more likely to be 45 years and older, male, and with more than 10 years of work experience. Our sample demographics also resemble samples of emergency managers surveyed by Wernstedt, Roberts, Arvai and Redmond (2019), Jensen and Youngs (2015), the International Emergency Management Association (IAEM 2005) and Peerbolte and Collins (2013), who similarly report a majority of older, educated, experienced males in the emergency management profession.

### Table 2. Summary Respondent Characteristics

<table>
<thead>
<tr>
<th>Respondent Characteristics</th>
<th>male (%)</th>
<th>&gt;45 years age (%)</th>
<th>completed grad degree (%)</th>
<th>&gt;9 years experience (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Managers</td>
<td>76.0</td>
<td>85.4</td>
<td>53.5</td>
<td>79.3</td>
</tr>
<tr>
<td>Emergency Managers</td>
<td>80.3</td>
<td>81.8</td>
<td>20.9</td>
<td>78.0</td>
</tr>
<tr>
<td>Planners</td>
<td>69.8</td>
<td>69.3</td>
<td>50.7</td>
<td>86.0</td>
</tr>
<tr>
<td>Public Works</td>
<td>70.4</td>
<td>90.3</td>
<td>31.8</td>
<td>70.4</td>
</tr>
</tbody>
</table>

Table 3 reports our sample’s summary statistics on the variables in the study.
Table 3. Summary Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Min.</th>
<th>Max.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(St. Dev.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>COST</strong></td>
<td>334,000</td>
<td>0</td>
<td>1,000,000</td>
<td>hypothetical cost (see Table 1)</td>
</tr>
<tr>
<td></td>
<td>(371,000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FATAL</strong></td>
<td>4.3</td>
<td>0</td>
<td>10</td>
<td>hypothetical fatalities (see Table 1)</td>
</tr>
<tr>
<td></td>
<td>(4.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DAYS</strong></td>
<td>14.7</td>
<td>0</td>
<td>30</td>
<td>hypothetical business closure (see Table 1)</td>
</tr>
<tr>
<td></td>
<td>(11.5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DAYSROOT</strong></td>
<td>3.5</td>
<td>0</td>
<td>5.5</td>
<td>square root of <strong>DAYS</strong></td>
</tr>
<tr>
<td></td>
<td>(1.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AREALOW</strong></td>
<td>0.18</td>
<td>0</td>
<td>1</td>
<td>low income residential area damaged (see Table 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AREAEQUAL</strong></td>
<td>0.63</td>
<td>0</td>
<td>1</td>
<td>all residential areas damaged equally (see Table 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AREAHIGH</strong></td>
<td>0.19</td>
<td>0</td>
<td>1</td>
<td>high income residential area damaged (see Table 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DAMAGE</strong></td>
<td>41,000,000</td>
<td>0</td>
<td>100,000,000</td>
<td>hypothetical amount of damage (see Table 1)</td>
</tr>
<tr>
<td></td>
<td>(42,000,000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DAMAGEROOT</strong></td>
<td>5,400,000</td>
<td>0</td>
<td>10,000,000</td>
<td>square root of <strong>DAMAGE</strong></td>
</tr>
<tr>
<td></td>
<td>(3,600,000)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Before describing actual findings, the performance of the choice experiments also warrants discussion, insofar as their fictional nature makes it difficult to determine whether respondents take them seriously. We have no way of knowing whether the answers provided by the respondents in the hypotheticals represent their true attitudes toward the choice experimental tradeoffs—a problem in any stated preference approach—but the distribution of choices across different dimensions supports internal validity. For example, it appears that the respondents thoughtfully consider the actual levels presented in the choice experiments. We can see this in the one choice experiment we include that presents an alternative that clearly dominates the other alternatives (better or equal performance on all attributes), which respondents selected 98 percent of the time (roughly 1 percent selected an inferior option and another 1 percent the status quo.
option). In addition, less than 1 percent of our respondents always selected the status quo option (in all six experiments), suggesting that most respondents weighed the interventions against the status quo in most situations (the status quo option accounted for roughly 2.5 percent of the choices overall).

Findings

Tradeoffs Over Lives

Our results show that respondents make tradeoffs, even with regard to lives. We see this most simply by examining the percentage of times respondents select a mitigation alternative with the lowest number of fatalities. Out of the nearly 4,700 choice experiments that presented a difference in the number of fatalities between the two alternatives, respondents chose the lowest number of fatalities in 73 percent of the experiments. If lives were valued above all other goods, respondents would have chosen the outcome with the lowest number of fatalities in all 4,700 cases.

The overall figure of 73 percent masks variation among respondents, however. Some respondents indicated that they were unwilling to trade off lives against other attributes, no matter what the alternatives. Approximately 35 percent of our respondents always chose the alternative with the lowest number of fatalities. For the other 65 percent of respondents who traded off lives against other attributes in at least one experiment they faced, individuals chose

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3 Each respondent faced 6 separate vignette choice experiments, as noted earlier, begetting a maximum potential number of choices from our 1,038 respondents of 6,228. However, some respondents failed to complete 1 or more of their 6 choice experiments. After accounting for missing responses, we have 5,616 choices. Nearly 4,700 of these presented a difference in the number of fatalities and meaningful tradeoffs among the other attributes (i.e., no choice was clearly superior on fatalities and all four of the other attributes).
the lowest number of fatalities in only 61 percent of the experiments. This lends support to hypothesis 1, that managers will not always choose the lowest number of fatalities when faced with a choice between preventing fatalities and other objectives.

We also can see evidence of these tradeoffs in our regression results, which control for the effects of multiple variables. We present these results in Table 4 in three models, ranging from the base model with just the hypothetical attributes, a model that includes interactions with each of the professions to examine if they trade off lives differently (Model I), and a full model with all controls and the political culture variable (Model II). Note that our conditional logit specification allows us to analyze the fixed features of individual respondents (their gender, profession, experience, etc., so-called case variables in conditional logit analysis) only through interactions with the attributes of the alternatives.

For continuous covariates, such interactions are straightforward, but for categorical variables, we use weighted effects coding rather than standard dummy variables (te Grotenhuis et. al. 2017, Bech and Dorte Gyrd-Hansen 2005, Viney, Lancsar and Louviere 2002, Louviere, Jordan and Hensher 2000). We do this for two reasons. First, effects coding makes the main effects for each categorical variable orthogonal to the model intercept and reduces statistical correlations between our main and interaction effects. This lowers standard errors, making our coefficient estimates more precise. Second, weighting accounts for the fact that the number of respondents in each category of one or more of our categorical variables might have a different number of respondents. For example, we have nearly four times as many male as female respondents. Weighting allows us to estimate coefficients relative to the overall average person in the sample rather than to an arbitrary reference case, such as an emergency manager respondent or a city manager respondent. As a result, the coefficients should be interpreted with
respect to the overall, weighted mean of the dataset rather than an arbitrary reference case. This approach also allows us to provide results for each category of categorical variables (for example, both males and females) in our regression output.
Table 4. Preferences for Hypothetical Attributes (Conditional Logit Analysis, odds-ratios)

<table>
<thead>
<tr>
<th>variable</th>
<th>BaseModel ( (n=5,450) )</th>
<th>Model I ( (n=3,742) )</th>
<th>Model II ( (n=3,742) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>COST</td>
<td>0.2171***</td>
<td>0.2150***</td>
<td>0.1853***</td>
</tr>
<tr>
<td>FATAL</td>
<td>0.4860***</td>
<td>0.4843***</td>
<td>0.5661***</td>
</tr>
<tr>
<td>DAYSROOT</td>
<td>0.9342**</td>
<td>0.9325***</td>
<td>0.9434*</td>
</tr>
<tr>
<td>AREALOW</td>
<td>0.7158***</td>
<td>0.7134***</td>
<td>0.6875***</td>
</tr>
<tr>
<td>AREAEQUAL</td>
<td>1.2482</td>
<td>1.2498**</td>
<td>1.2529***</td>
</tr>
<tr>
<td>AREAHIGH</td>
<td>0.6585***</td>
<td>0.6579***</td>
<td>0.6761***</td>
</tr>
<tr>
<td>DAMAGESROOT</td>
<td>0.9572*</td>
<td>0.9548**</td>
<td>0.9398**</td>
</tr>
<tr>
<td>city*FATAL</td>
<td></td>
<td>1.0319*</td>
<td>1.0497***</td>
</tr>
<tr>
<td>emergency*FATAL</td>
<td></td>
<td>1.0177</td>
<td>0.9761</td>
</tr>
<tr>
<td>planner*FATAL</td>
<td></td>
<td>1.0457***</td>
<td>1.0610***</td>
</tr>
<tr>
<td>pubworks*FATAL</td>
<td></td>
<td>0.8608***</td>
<td>0.8741***</td>
</tr>
<tr>
<td>flood*FATAL</td>
<td></td>
<td></td>
<td>0.9951</td>
</tr>
<tr>
<td>floodnot*FATAL</td>
<td></td>
<td></td>
<td>1.0229</td>
</tr>
<tr>
<td>blue*FATAL</td>
<td></td>
<td></td>
<td>0.9974***</td>
</tr>
<tr>
<td>female*FATAL</td>
<td></td>
<td></td>
<td>0.9891</td>
</tr>
<tr>
<td>male*FATAL</td>
<td></td>
<td></td>
<td>1.0028</td>
</tr>
<tr>
<td>postgrad*FATAL</td>
<td></td>
<td></td>
<td>1.0050</td>
</tr>
<tr>
<td>postgradnot*FATAL</td>
<td></td>
<td></td>
<td>0.9967</td>
</tr>
<tr>
<td>yearsexp*FATAL</td>
<td></td>
<td></td>
<td>0.9990</td>
</tr>
</tbody>
</table>
We express all of the results in Table 4 as odds ratios rather than as logit coefficients, since we believe it is more intuitive to think about the change in the likelihood of choosing an alternative as the value of a variable changes, holding other variables constant. Thus, an odds ratio below 1.0 for a particular variable indicates a lower likelihood of choosing an alternative with higher levels of that variable (negative relationship) and those above 1.0 a higher likelihood (positive relationship).

The odds-ratio for the fatalities attribute in our Base Model, 0.49, confirms the lower likelihood of selecting a mitigation alternative entailing an additional fatality compared to an otherwise identical mitigation alternative. Similarly, the magnitude of the odds-ratio for the cost attribute, 0.22, indicates a lower likelihood of selecting a mitigation alternative with an additional unit of cost (expressed in units of $100,000) compared to an otherwise identical alternative without the additional cost. We can compare the relative weight of these attributes by computing the ratio of their untransformed logit coefficients, which are -0.7216 for fatalities ($=\ln[0.4860]$) and -1.5275 for costs ($=\ln[0.2171]$). The ratio of these two coefficients (-1.5275/-0.7216) equals roughly 2.1, suggesting that each additional fatality equates to roughly $210,000 per year in mitigation spending for 25 years. This implies a net present value of preventing a fatality of nearly $3.7 million (assuming a 3% annual discount rate). To put the number in
perspective, the EPA’s value of a statistical life in 2017 was $10 million, while the Department of Agriculture’s was $8.9 million (Merril 2017). The 26 scientific studies the EPA draws on to determine the value of life offered valuations that ranged from $1 million to $24.5 (Guidelines 2010). VSLs are not widely used – they are cited in approximately a dozen major agency rules each year, and they are less often used at the local level. It is unlikely, though not impossibly, that our respondents would be intimately familiar with statistical value of life calculations from their work.

**Organization and Professional Group**

The interactions of organizational home and fatalities show significance for planners, city managers, and public works officials, but not for emergency managers in our Model I results. The odds-ratios for our city manager and planner interaction terms both exceed 1.0, indicating less aversion to fatalities than the mean person in the sample, (and these officials still show aversion to fatalities, but less aversion than the mean person). In contrast, the odds-ratio for public works officials falls below 1.0, indicating more aversion to fatalities than the mean person in the sample, a finding that is significant at the .01 level.

We plausibly interpret these results through the different work environments of the officials. For example, city and county managers work more closely with elected officials, are less often in technical roles, and are more likely to have to justify decisions to the public. Therefore, the scope of their responsibilities is larger, covering different groups within the city, technocratic and political perspectives, and a long-term time horizon, making saving lives compete with other goods. Planners may similarly balance a range of concerns about planning for the future that could lead them to trade off saving lives in the present against future
alternative trajectories of the city and the well-being of future residents. One of the planning profession’s functions is to insert concern for a community’s future well-being into a governing system that can emphasize the short-term time horizons of elections (AICP 2016; Peterson 2009). City and county managers and planners may greatly value lives, but when presented with alternative goods and tradeoffs, they show a greater concern, on average, for other goods such as reducing damage, limiting cost, reducing the concentration of damage in a single area, and preserving community functions.

Public works officials’ greater aversion to the loss of life may stem from their responsibility for infrastructure failures. They can be held responsible for damage if infrastructure failure causes the loss of life (Mayo and Hollander 1991). This concern also been raised by engineers in a study by Haas and Nigg (1995) in which engineers claim that the general public does not understand the nature of their work, and that engineers can only provide the level of safety that the people who hire them request. For example, a levee might be built to withstand a category 3 hurricane, but when a category 5 hurricane occurs and the levee collapses, the general public holds engineers responsible, even though the public and its representatives bear responsibility. The protracted battle over the U.S. Army Corps of Engineers’ responsibility for the deaths during Hurricane Katrina is one prominent example of the criticism engineers and public works officials face after a disaster.

**Tradeoffs Over Other Attributes**

We did not develop formal hypotheses for how managers would approach tradeoffs over the other attributes in our vignettes—the cost of damage from flooding after implementation of the mitigation project, the area in which the damage occurs, the timeline of business recovery,
and the cost of the mitigation project—but our results are in the expected directions and statistically significant. For instance, respondents unsurprisingly showed an aversion to higher levels of forecasted damages to private property, measured by the root of the unreimbursed cost of private residential damage. For the location of the damage, we present respondents with scenarios that vary whether a mitigation project is expected to result in damage reduction to poor areas, high-income areas, or affect all areas equally. Studies of social vulnerability and environmental justice show that poor areas of a region often suffer the greatest damage from floods because they lack the strong buildings, the protections of the natural environment, and the political capital found in wealthier areas (Finch, Emrich, and Cutter 2010; Bolin and Kurtz 2018). All three of our models indicate that respondents show a statistically significant greater aversion to projects that affect high or low-income areas in particular, and Models I and II show a statistically significant preference for mitigation that affect all areas equally. This suggests a general preference for equality among managers, if equality means developing plans that treat all areas equally. Professionalization processes may encourage a commitment to equality and equity. For example, the American Society for Public Administration (2018) code of ethics mentions “strengthen social equity” as one of its pillars, while the code of the planner’s association, AICP (2016), singles out social justice and a “special responsibility to plan for the needs of the disadvantaged.”

All of our models also unsurprisingly show a preference for lower costs. The odds-ratio of 0.19 for COST in Model II means, for instance, that a $100,000 difference in costs between projects means that the odds of selecting the more expensive project over the cheaper one are 0.19 to 1. If respondents ignored costs and fixated on other attributes such as fatalities, property damage, or the distribution of damage, the cost odds ratio would lie much closer to 1.0 and not
be significant 1. Similarly, respondents indicate aversion to longer business closures, with an odds ratio of 0.93, significant at the 0.01 level in Model II (as noted earlier, the model includes this variable as a square root transformation, thus the odds-ratio changes over the linear range from 0 to 30).

**Personal and Demographic Characteristics**

Model II includes a wider range of interactions to control for personal and demographic characteristics that may affect how managers make tradeoffs over lives. Our sample size for any one group is too small to draw broad conclusions, but we find some intriguing results that provide context for our study and could be explored further in future work.

We control for work experience and find the more experienced respondents appear less concerned about fatalities. However, we find that gender is not a statistically significant factor. As noted earlier, weighted effect coded variables, such as female, should be interpreted with respect to the average person in the dataset, not with respect to males. Neither prior experience with a flood that caused fatalities nor education have a statistically significant association with the fatalities attribute either.  

**Community Setting**

4 We controlled for prior experience with fatalities from flooding because prior experience is “one of the most influential factors in hazard perception” (Burningham, Fielding, and Thrush 2008; Lundy and Kondolf 2012, 831). Given that government managers may serve in several jurisdictions throughout the course of their career, simply including their current county would not incorporate the variety of experience that each manager brings.
The political and cultural context of the county in which managers work is also associated with differences in their decision preferences. There is no single proxy for culture or politics, but we use “red vs. blue” as a proxy, which we measure as the average proportion of voting citizens in a county over the 2000-2016 period who voted for the Democratic presidential candidate (in five elections). Voting patterns are correlated with race, gender, ethnicity and religion, but there is some evidence that partisan choice also reflects different value orientations.

We find that as the proportion of citizens over the 2000-2016 period who voted for the Democratic candidate 2016 goes up, the concern for fatalities also goes up. This proportion ranges from 0.066 to 0.902 over our 600 plus counties in the five elections. For every 10-percentage point increase in proportion of the vote going to the Democratic candidate, the odds of choosing an option with one less fatality goes down by roughly 3 percent. This is relatively small, but it suggests political effects in the county culture. The effect is consistent with Haidt’s (2012) claim that liberals have a narrower moral universe and the implication that they may be less willing to make tradeoffs with lives against other values.

Beyond politics and values, communities differ in size. Larger communities are likely to have larger administrative bureaucracies, more constituencies and interest groups, and greater distance between politicians and the public. We interact population density and fatalities as a control variable in the third model, but do not find significant effects. Adding population density also eliminated a statistically significant interaction between experience with flood fatalities and fatalities.
The broad correlation between the democratic vote and concern for fatalities is suggestive and is worth pursuing in more detail in a future project analyzing the how county political culture shapes public managers’ attitudes and decisions.

Conclusion

In public administration and bureaucratic politics, the micro foundations of managers’ behavior are generally assumed or stated without evidence. This paper contributes to that lack of evidence by building on theoretical models grounded in psychology, normative theory, and economics to explain how managers act and make decisions, supported by empirical evidence (Grimmelikhuijsen, Jilke, Olsen, & Tummers 2017).

This study seeks to leverage a quasi-experimental vignette survey design to examine the extent to which a relatively representative sample of public managers value human life relative to other property and cost objectives. We are particularly interested in how managers make tradeoffs regarding lives. Public sector managers have power over resources deployed to protect lives, though the tradeoffs they make in the face of risk and uncertainty are rarely made explicit. We focus on these tradeoffs for two reasons. First, if we find evidence that managers do make tradeoffs, we can better structure decision processes to provide them with necessary inputs. Second, if managers make tradeoffs regarding lives, we can identify different perspectives on these tradeoffs, such as by profession or community setting, to provide evidence of the benefits of structuring decision processes so that multiple professional groups and multiple communities are represented.

Building on theories in economics, normative theory and public administration, we find evidence supporting our hypothesis that managers make tradeoffs regarding lives, choosing the
flood plan that resulted in the lowest number of fatalities 73 percent, rather than 100 percent, of the time. Economic theories assume that lives, like everything else, have a value that can be traded off against other goods. Normatively-oriented theorists may argue that lives are sacred and not to be traded off, but evidence that some managers do make tradeoffs regarding lives is useful for showing why arguments to make the protection of lives an overarching principle in disaster plans and codes of ethics are worth pursuing. Some managers say explicitly that they value saving lives above all else. One manager wrote in response to our survey that, “As you can tell, I’m a finance guy. While money is important, the cost of loss of life is immense.” Nonetheless, we see evidence in our sample of a willingness to trade off lives against other benefits. Our study thus captures the nuances of how managers trade off lives against other goods that contribute to community functioning.

One line of research in public administration has sought to understand the conditions under which public employees are more prone to take risks (Turaga and Bozeman 2005; Nielsen 2014, Nyhan 2000, Vigoda-Gadot 2009). Our paper pursues a related line of inquiry into how public sector managers make choices among competing values, including human lives, under conditions of risk and uncertainty. Local government decision making more often involves a choice among competing goods than a single roll of the dice. In emergency planning, public sector managers have to weigh the risk of lives lost, property damage, and the length of disruption in various geographic areas. Government managers rely on expert calculations about risk, but the managers themselves make choices about which goods to prioritize. Often the choices among priorities are implicit, but we ask respondents to choose among scenario outcomes to elicit differences among the managers.
One of the chief factors associated with tradeoffs over lives is a manager's professional and organizational home. Professions and organizations embody a body of knowledge, a socialization process, and organizational perspectives and interests within county government. Therefore, they should be expected to weigh lives versus other goals differently given differing emphases on goals that may compete with saving lives: the stability of infrastructure, protecting property, or bouncing back to normal quickly, which is the most common meaning of the ubiquitous term resilience (Reddick, Demir, and Streib 2018). We find that our interaction terms for city managers and planners’ yield odds-ratios above 1.0, indicating less aversion to fatalities than the mean person in the sample. In contrast, the odds-ratio for public works officials is less than 1.0, indicating more aversion to fatalities than the mean person in the sample. This confirms our hypothesis that choices vary by professional affiliation. However, we emphasize that while we clearly show statistically significant differences among the professions, and can offer plausible explanations for them, our approach does not allow us to say anything definitive about the causal mechanisms for these differences.

We also find that managers make value tradeoffs in terms of how mitigation plans impact different parts of their community. Respondents appear more attracted to projects that would affect all areas equally, and less attracted to projects that would affect either high or low-income areas in particular. If the differential impacts of floods on different communities were not of concern, we would have seen no statistically significant differences among the options.

Our analysis has several limitations. We present managers with a hypothetical situation and ask them to make forced choices among alternatives with stated preferences rather than revealed ones. Furthermore, our individual questions do not capture the dynamics of multi-stakeholder processes. However, presenting choice experiments to managers about an issue they
confront in their work lives improves the study’s validity. Some studies of decision-making use standardized problems such as the Asian disease problem, which have the advantage of being widely used, but the disadvantage of not relating to respondents’ work. Other studies use students or MTurk samples rather than managers, but some research suggests that students make different decisions in experimental settings than do experienced professionals (Mintz, Redd, and Vedlitz 2006). Our survey of public managers has the advantage of being closer to practice than some other work.

Our findings have implications for managerial professionalization and the structure of decision processes. Public managers lack specific guidance in codes of ethics, mission statements, or professional association goals about whether they should privilege protecting lives over other goods. Professional associations, organizational leaders, and politicians may want to consider whether they should provide more explicit guidance about the importance of saving lives in disaster planning, since the government’s response to value tradeoffs can vary depending on the professional and organizational context rather than be a stylized balancing by government as a whole (Thatcher and Rein 2005). Furthermore, if different professional groups place different value on lives relative to other goals, decision processes that incorporate all four groups have the advantage of incorporating multiple perspectives even if they are slower or less efficient. Weighing different values from the perspective of different professional knowledge bases and organizational homes is part of the ideal of administrative deliberation when combined with public participation (Fischer 2003).
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